NEW PARADIGM IN HIGHER EDUCATION; ENTREPRENEURIAL UNIVERSITY

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Abstract: Aim: In this study, it has been focused on entrepreneurial university trend, which has been very popular especially for a few decades. Entrepreneurial university interlinks its three missions: education, research and serving society. That has meant partly having in a university structure besides traditional education and research functions a technology transfer office (TTO) and active patenting of own research results by the university. That means also creating entrepreneurial competencies and mind set among university members, active position to production and implementation of university knowledge for prosperity of society and entrepreneurial environment inside and around the university supporting knowledge transfer. The concept of entrepreneurial university emerged as a response to a fast changing business environment and to the necessity of raising students more capable to solve more and more complex problems that business faces in the era of globalization. Here the target audience of the entrepreneurial university is industry and business world, and the cultivation of qualified work force to do work in this area is directed to enter the entrepreneurial university of the field. Method: This study is a descriptive and qualitative study in the survey model. The general survey model is a research approach purposed to describe a past or present situation as it exists and the event, individual and object are investigated and attempted to be defined within its own conditions. The concept of entrepreneurial university has been put forward in all aspects in the study and model based on literature and can be applied in our country and has been designed and the applicability of the model has been presented to evaluation of the experts of faculty members in this field. Findings: Entrepreneurial universities mainly aim to contribute to the development of society, transfer technology and produce innovatively as their third function after traditional functions of creating human resources and conducting research. Nowadays, in many places of the world, universities try to expand and diversify their sources of income. Aside from public sources assigned to them, universities evaluate their facilities, vehicles, knowledge sources, and qualified work force with an “entrepreneurial” approach to make more resources. This study states that universities should create more financial sources apart from traditional ones and describes the methods and ways in which they can accomplish it.

Key Words: Entrepreneurial University, Third Generation University, Multiversity, University-Industry Collaboration, Innovative University

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INTRODUCTION

Developed societies are in a process of change and this change is manifested in many institutions, including universities (Garraway, 2006: 474-475). Universities change, new initiatives, comparative evaluations in some basic functions and implementations motivate the universities and compel them to become entrepreneurs, to produce information, technology, innovation and build more relationships with the society (Lambert, 2009: 145). Since the end of the 1980s, universities around the world, especially EU universities, are facing irreversible change and the roots of this change are correlated with the paradigmatic political transformation of social, economic and educational policies. Some of these universities are facing change in financial and technical fields, while others have difficulties with vision and positioning (Mora and Vieira, 2009: 78). For example, some universities, faculties and departments continue their activities in the competitive market environment without financial pressure due to their secure resources, while others must act wisely against budgetary cuts and withstand this situation (Lambert, 2009: 145).

The first mission of the university is education. Since its foundation in the 12th century, education is the primary duty of the university. Since the 19th century, the mission of research has been added to the main mission of the university. Nowadays, universities are only educational institutions as well as act as institutions aiming at research especially in positive sciences. This change is expressed as the first academic change in the literature. The universities continued their existence as institutions, which provided education and conducted independent research particularly in the fields of science, social sciences and engineering until the first quarter of the 20th century. While the universities fulfilled their educational and research mission, all the financing they required was met by the state. In the 1930s, governments had to cut university funding for the first time due to the ongoing global economic crisis in the world. In this period when research activities have begun to be intensified and higher education demand has started to increase, university administrators have been searching for non-public finance resources in order to proceed with their research activities increased in cost as well as to provide quality education.

Universities have started to share data, technology and innovation that they have gained from scientific researches done in the campus with private companies, industry and in return began to getting supply funds for future investigates from public institutions. Com-
Commercial pressures have compelled universities to be entrepreneurial, successful in the context of developing research functions and meeting student expectations in a competitive situation (Rinne and Koivula, 2009: 185). Universities have had to open their doors to stakeholders outside the academic circle for the first time in order to reach rich financial resources for R&D studies and projects being conducted. This led to a shift towards third generation universities, which enabled universities to commercialize research results from the second generation research-based universities. In other words, the main focus and main effect of the change towards the third generation university is financing.

**Brief History of Paradigm Change in Higher Education**

Universities are now on the path to contribute to the regional and national development by making daily use of knowledge and earning profits from the conversion of produced knowledge to goods and services by allowing commercialization of scientific knowledge produced by the relations of industry and the state as well as traditional education and training, and to (Almeida, 2008). The basis view for traditional universities was that the main task of the universities was to produce only scientific information, but the transfer of this information to the commercial field was not the job of the university. However, universities are moving within the open innovation system; interacting more with companies and government agencies rather than closing in on itself (Chesbrough, 2003; Etzkowitz, 2006; Günther and Wagner, 2007: 410: 196).

The roles are changing due to new social needs and the university should keep up with radical changes in its educational practices and research areas in order to be able to respond to all these needs (Farsi and Talebi, 2009: 196). The importance of education especially in higher education in a world where change is the main determinant is increasing expectations from public sense (Peterka, 2011). There is a matter of structural change in the transition from the traditional education and training mission (first mission) to the education and research mission (second mission) and then to the third mission (contribution to commercialization of knowledge and economic development) particularly at European universities (Guenter and Wagner, 2008). This leaning includes areas such as public budgetary cuts, suppressing the university against efficiency and effectiveness, contractual research, the application of appraisal and control systems, and the emphasis on entrepreneurial cultural values (Rinne and Koivula, 2009: 185). There is a matter
of re-organization of knowledge produced in
the university towards the expectations and
needs of the market. The main purpose on
the basis of an entrepreneurial university is to
make research findings available to the indus-
try rather than only education and research.
In fact, traditional university advocates saw
that the goal of contributing to social and eco-
nomic welfare could not be achieved without
changing their vision and mission in areas
such as knowledge generation, education and
research, and many scientists resisted this
change had to use to the metaphor of “entre-
preneurial university” to describe the univer-
sity instead of the classic metaphor “ivory
tower” (Sooreh, et. al., 2011).

The first change occurred in the transition
from the education-based university to the re-
search-based university, while the last change
occurred in the transition from the research-
based university to entrepreneurial universi-
ty. The progress of knowledge-based innova-
tion in the third generation university and the
transfer of daily life (market) have been the
main principle and duty of universities (Farsi
and Talebi, 2009). Therefore, universities
have to innovate in education and research to
get a better position in the market (Suciu and
Platis, 2009). The constantly changing nature
of social demands is compelling universities
to become information society, more innova-
tive and creative (Zaharia and Gibert, 2005:
35). It is inevitable to change towards entre-
preneurial university from traditional univer-
sity in order to meet these expectations from
the state, the market, civil society organiza-
tions and society.

PURPOSE of STUDY

The aim of this study is to present conceptual
framework of the entrepreneurial university
paradigm and being guide for traditional uni-
versity administrators who want to transform
entrepreneurial university and being resource
for researchers to be able to contribute theo-
retically to the field and bring innovation to
the studies in this field.

PROBLEM STATEMENT

What is the conceptual framework of the
entrepreneurial university paradigm? What
aspects can be taken into account while re-
garding a university as “entrepreneurial uni-
versity”? What are the factors and merits that
distinguish entrepreneurial universities from
traditional universities?

LIMITATION of the STUDY

In this research, the concept of “entrepre-
neurial university” has been examined in the
context of the definition presented in related
literature.
DESIGN of STUDY

This study is a descriptive and qualitative study in the survey model. The general survey model is a research approach purposed to describe a past or present situation as it exists and the event, individual and object are investigated and attempted to be defined within its own conditions (Karasar, 2014). The concept of entrepreneurial university has been put forward in all aspects in the study and model based on literature which can be applied in our country and has been designed and the applicability of the model has been presented to evaluation of the experts of faculty members in this field. Descriptive research tries to describe and explain what events, situations, assets, institutions: and so on are (Kaptan, 1993:59). Therefore, it has been decided that the research model should be qualitative so that information collected by qualitative data collection methods such as document analysis and interviews will provide an in-depth review. Yıldırım and Şimşek (2006) define the qualitative research as research that use qualitative data collection methods such as observation, interview and document analysis, and perceptions and events are revealed in in a natural, realistic and holistic manner and qualitative process is followed. Qualitative research purposes to identify phenomena and events in the natural environment. The researcher tries to reach the truth about the situation being studied instead of generalizing the findings and uses word analysis, detailed participant interview reports by revealing a comprehensive study table and organizes the research in natural environment (Ekiz, 2007; Karadağ, 2010). The main characteristic of the qualitative research is to reveal the points of view and world of meaning of study subjects and try to regard the world with their eyes (Kuş, 2009). Showing sensitivity to natural environment, being a participatory role of researcher, having a holistic approach, providing to reveal perceptions, having flexibility in design of study and having an inductive analysis are important characteristics of qualitative research techniques (Yıldırım and Şimşek, 2006).

The conceptual framework of the entrepreneurial university was presented to the reader in the study. The detailed information in subfields such as definition of the entrepreneurial university paradigm, parameters, principles and university-industry cooperation, commercialization of university studies and so on was given. Native and foreign sources related to the study were reached through university libraries and the internet. Firstly, literature was reviewed and related publications and resources were gathered in order to collect the data. The concept of “Entrepreneur Univer-
sity" in the world was revealed in the study by reviewing literature.

Data Collection and Data Analysis

Document review method used in qualitative research methods was used as the primary data collection method in this qualitative research. Data were collected by reviewing documents of the sources in the written, visual, printed or virtual environment reached towards the research problem. In qualitative research, document review can be alone data collection method or it can be used with other data collection methods. Document review involves analysis of written materials including information about the facts or events aims to be investigated (Yıldırım and Şimşek, 2013). The data sources to be used in qualitative research are the objects obtained from personal or formal documents and research fields (Güler, Halıcıoğlu, and Taşgın, 2013 as cited in Bryman, 2004). Therefore, the sources of data used for this study includes;

- Performance reports of universities introduced as entrepreneurial universities,
- Websites of universities,
- Studies and publications of international institutions and organizations related topic,
- Written scientific studies conducted by different researchers in the field of higher education,
- Several statistical information about higher education,
- Native and foreign books that have entered the literature

Reasons for Transition to the Entrepreneur University

Globalization, the revolution in information technology, the changing education, needs and expectations that expects from its employees of the labor market and the rapidly increasing competition and strife between educational institutions have compelled the structures and systems of universities to change. Thus, this situation forced the traditional education paradigm to change (Oleksiyenko, 2002: 4). Universities have to focus on being faster, being more flexible, particularly on the point of responding to developing and changing market conditions in an ever-growing competitive market (Vorley and Nelles, 2010: 635).

In the creation of modern life, particularly in the last thirty years, a significant change has taken place and the market has been intensely affected by the state, civil society organizations and also universities as an institution. Higher education institutions have noticed
the increasing reality of marketization with
the pressures of the public sector (Zomer,
2011: 86). The universities which are living
away from the public interest and attention
until the 20th century, have begun to attract
interest and attention again on self and act as
an engine to increase the acceleration of in-
ovation that comes with change in the age
of entrepreneurship with this century (Nelles
and Vorley, 2011: 166).

Internationalization, globalization, computer
and internet and the adoption of English as
an educational language have caused coop-
eration and competition among universities
(Rabbinge and Slingerland, 2009: 55). The
quality and quantity of the forces (market,
business world, state, student, family, etc.)
that influence the education sector have
changed because of globalization and the
development of communication technolo-
gies, slightly low cost of transportation and
gaining momentum of the activity of students
and academicians day by day has created a
competition environment in national and in-
ternational dimension (Dima and Vegheş,
2008: 57-58). Universities have had to change
education programs, curriculum content and
educational technologies to attract all stake-
holders due to global competition, new tech-
nologies, increase in expectations and reorga-
nize them according to the expectations of the
market (Peterka, 2011). In the education sec-
tor, particularly the presence of foundation
universities and private universities and fac-
tors such as globalization, the constant vari-
ability of market expectations, the demand
for easy sections to cope with the increasing
unemployment in the world and the mas-
sification of higher education since the last
quarter of the 20th century caused the query
of the quality of education given to universi-
ties. These factors have led to a revolutionary
alteration in the field of higher education over
the past thirty years and universities have had
do to more contractual research, have richer
funding resources, qualified academic mem-
bers and brilliant students (both material and
intellectual capital) (Gajon, 2007).

Today, competition has become a phenom-
enon that is universally accepted among all
universities in the world and has redefined
the rules of the game. The only way to at-
tract the industry, academicians and students
in this competitive environment is to provide
qualified education. The main education pol-
cy policy dominant in the higher education world
is; Strengthening cooperation in the business
world, ensuring more resources to education
and research from both the public and private
sector, providing that the information and
technology gained as a result of research are
transformed into commercial values, contrib-
utuing to employment through entrepreneurial individual education and holding competitive advantage in information communication technologies that require advanced expertise, health sciences and various engineering disciplines (Rinne and Koivula, 2005: 100-103). The way to reach these goals is to transform the university towards the entrepreneurial paradigm.

Universities have passed through two revolutions: the first is the transition from the universities with only educational purposes to research universities and now especially in America and Europe, universities are considered to have passed this stage. While the traditional Humbold type of universities have carried a mission of foundation focused on the educational intent, universities especially after the Second World War have begun to carry out a research-focused mission. The second revolution has changed from research universities to entrepreneurial universities (Farsi and Talebi, 2009: 456). In universities, a structural shift stands out in a shift from a traditional education and research mission to a third mission (commercialization of produced knowledge and contribution to uneconomic development) (Guenter and Wagner, 2008: 412). Information production and transformation of knowledge into knowledge-based innovation that can be used and “monetized” are aimed in the third-generation university. The mass production which started with the industrial revolution, the production based on the raw material and industry-oriented production now came to the end of the period. Today, we live in a process based on the knowledge in production, process, evaluating and transforming it into a meta that can be “sold”.

Peterka (2011) examines the factors that compel education-research-based universities to turn towards monetizing entrepreneurial universities by providing commercialization of research results in five basic categories:

1. **Increasing demand for higher education:** In this century, more and more people than all human history will attend higher education institutions and universities. The funding proportion that the public allocates for higher education is steadily declining in the presence of an increasing number of students inversely proportional. Therefore, in parallel with the increase in the number of students attending higher education, the university needs additional resources to be able to carry out qualified education activities. This situation forces universities to cooperate more closely with the market.
2. **Internationalization of education and research:** This tendency has been accelerated visibly with the development of information and communication technologies. Competition emerging because of internationalization, competition among states, competition among universities and different universities such as competition among research institutes may be exemplified.

3. **Increase in the number of institutions producing information:** Dissemination of innovation and information is no longer unique to universities because of globalization and technological developments. The rapid increase in the number of institutions producing information has had a serious impact on universities that want to maintain leadership in this area.

4. **Rearrangement of information:** This trend has two views that seem to be completely opposite. Variety in increased knowledge, specialization in specific areas, emerging of specific purpose-based research and the emphasis is on the basic areas of scientific research as interdisciplinary, for instance the progressive development of important social problems such as progressive development and growth. That is, the restructuring of knowledge is meant to remove the limits of basic and applied research.

5. **New expectations from university:** Universities must respond to the demands in the fields, such as scientific and technical education, lifelong learning, financial management, organizational management, negotiation management in the process of transitioning to information society. It is an obligation to restructure the university in the structural, academic and administrative fields to be able to efficiently and effectively perform all its applications (education, research, etc.) that the university has revealed based on its mission and vision. For example, the traditional Humbolt type university model has a rigid, hierarchical structure and entrepreneurial university requires a more flexible and transparent management structure which is more intensely cooperated with society and the economy. Hence, universities like companies and businesses prepare for the future by knowing what the future will bring to them and developing strong strategies that will cope with change based on strong predictions for sustainable growth and development.

The management style of the Second Generation (Humboldt type) universities is severely criticized in the literature. Non-functioning
With the change of the management model, instead of Humboldt-type management, a system which entrepreneurial management is dominated, institutional autonomy is provided, state control is minimized, and stakeholders such as NGOs, local administrations, business and economics have more say in management and a leader facilitates change and transformation is proposed. University administrators should provide “marketization” in the local and national context by continuing education and research activities and transferring information and technology to the sector that contribute to socio-economic development (Mowery and Sampat, 2006).

We can see that higher education and the new economic order cannot be separated from each other due to contribution of higher education to economic development and progress as is often expressed in the literature (Penksa, 2010). It is unimaginable to be unaffected by universities in this global world where national borders are now left over in today’s new economic order, transportation and communication facilities are increasing and getting cheaper with technological developments, trade is made through imports or exports via online systems and countries’ individual currencies lose importance. Universities have had to take a permanent place in this economic discipline with the increase of university-sponsored patents and companies focused on information-technology and new production paradigms based on knowledge-based production.

The globalization of economic and social relations and ascent of information society have caused a direct influence on the university, the ongoing innovation in information technologies and the requirement to respond more flexibly to changing market conditions has also changed the production methods entirely (Subotzky, 1999: 512). Therefore, the universities have to guide the enterprises which are based on scientific knowledge, discovering and applying new production methods, growing qualified human power, producing new goods and services by achieving knowledge-based production in order to help the country to cope with global competition.

Today, accessible higher education, increase in communication and transportation opportunities have led to serious competition
among the universities. This competition also put forward the matters such as attracting more qualified students and faculty members to their universities (Röpke, 2000), creating more resources by providing the desired quality goods and services through cooperation agreements at higher sums in the public sector especially in business, preparing global curriculum and course contents that enable to grow individuals who know changing production systems, discover information and can easily adapt to work anywhere in the world.

The emergence of changing power balances and private/foundation universities in education at the national level and the rapid increase in competition between universities at international level due to its rapid and cheap mobility have seriously affected the higher education sector (Dima and Vegheş, 2008: 56). While students expect education based on high technology and a program to better prepare them the new economic system from universities, higher education institutions add more computer-aided programs which are appropriate for the expectations of business and economics concerning their curriculums (Penksa, 2010).

The competition triggered by free trade and globalization has put considerable force on the universities with the privatization of the economy and the mutual cooperation of national governments, so left the place to international corporations and universities with the weakening of the public sector (Rinne and Koivula, 2005: 189). Moreover, concepts such as governance, accountability, customization, globalization has led to the adoption of market values such as business, profit, production, value added, productivity, investment, advertising, etc. by the university (Curri and Newson, 1998). Universities began to change their educational and research-based programs they introduced to the labor market by altering product portfolios and introducing themselves to the market with large advertising expenditures (Colado, 2001: 208).

Universities have faced with new responsibilities like contributing to regional, economic and social development, coping with the decline in public resources, competition in the education market and so on. In this respect, universities are under new obligation to be more entrepreneurial, to promote the commercialization of research results together with knowledge-based initiatives, and establish new companies or cooperate with companies (Cano, et. al., 2006).

The new economic system and higher education are now regarded as indivisible whole
because of the added positive value of higher education to economy. Universities have become the basic element of the new economy with patent rights held by the university with the commercialization and transformation of information to a usable and buyable meta, thus universities are now more centralized to processing like market and market-oriented activities (Park, 2012: 90).

Globalization and integration process increasing with the economic dependence of the nations of the world on one another creates competitive opportunities for talented and successful individuals and knowledge-based investments as well as creates opportunities of global production and information exchange for international companies, firms and corporations. Thus, higher education institutions become a vital part of the creation process of research and innovation (Zaharia and Gibert, 2005: 35). It is a matter that the transfer of knowledge to the private sector in the universities with the commercialization of university researches and the use of this information as goods and services are used as economic development tool. Knowledge transfer and entrepreneurship are becoming the engine of economic development (Curri, 2008).

The globalization of the world’s social and economic relations and the rise of information society have also influenced the universities. Increased innovation in information technology and flexible and rapid response to ever-changing market conditions have changed the forms of production (Subotzky, 1999: 516); and this changed the information production forms, creates need more flexible, creative and knowledge-based skills to skills in modern and high technology-based business environments (Zhou and Peng, 2008: 639). As a result, all these changes have been reflected on the educational and research activities of higher education institutions (Subotzky, 1999). Traditional classroom education has left its place to online and distance education. The partnerships with the business world have not only been scientifically based, but also have opened commercialization (Park, 2012: 92). The universities diversify their educational programs and research areas they offer for the market, enrich product portfolio and prepare education programs in accordance with international standards (Colado, 2001: 208).

The entrepreneurial university is a university where anticipation of the business and the industry market is mutually negotiated constantly and made necessary arrangements with traditional academic research curiosity.
In this context, the entrepreneurial university is not only in a fixed static position also has function as a reflection of new attitudes and expectations against the roles and aims of the university in the new common system based on the information economy (Styhre and Lind, 2010: 916). In the same way, as a response to the rapidly changing business world, entrepreneurial universities have been described as universities which raise students who have the qualifications to find solutions to the increasingly complex problems faced by the business world in the global age (Razvan and Dainora, 2009). Here the target group of the entrepreneurial university is the industrial sector and the business world. The education and orientation of qualified human power that can serve in these areas is in the field of entrepreneurial university.

We have been witnessing that advances in the fields of globalization, economy, international competition, international trade, information era, informatics and communication have changed the science therefore universities towards a life style that values all of these changes, social transformation, cultural integration and a new production and consumption habit (Büyükuslu, 2011). Almost all of the universities around the world started reconstruction process after the last quarter of the 20th century. Modern universities founded based on the needs of modern societies are being reconstructed depending on the necessities of information communities. Traditional Humbold type universities can no longer respond to the requests of the society. Relatively more static, consistent and predictable higher education institutions were forced to transform structurally in order to stand still in this unfamiliar territory and sustain the functions of their existence as basic education, research/information production and public service in a strategic administrative model. To achieve this, universities must undergo changes from traditional to entrepreneurial university. In this study, administrative approach and processes of entrepreneurial university were emphasized; a new executive style to facilitate faster and more effective meet of expectations from industry, society and economy was promoted.

University is regarded as a crucial instrument in creation of modern information-based economy. Since most of the scientific information exists in universities and government-funded institutions; universities are viewed as accelerator of regional socio-economy with their founded or partnered companies, innovative enterprises and production of information that creates added value (Cano, et.al, 2006). Entrepreneurial university is a strong concept that stems from the responsibility of
universities with economic development and bonds with industry with its researches (Razvan and Dainora, 2009).

University’s functional environment is highly dynamic and changeable. In this sense universities do not only stay responsive to ever-increasing production of information, but also try to keep up with the changing process around themselves by technology transfers in association with industry, foundation of new companies or partnership agreements with existing companies (Lehrer, et al., 2009: 274). Thus, comparing with the traditional higher education sector, a new university model with various structures and regulations cannot stand strong in the heating competition of the education platform unless it is entrepreneurial university (Dima and Vegheş, 2008: 57-59).

In the last two decades, universities have evolved from the state of being relatively financed by public resources to more financial autonomy with higher financial risks as results of their actions. This situation leads to an uncertainty related to universities and this uncertainty might be attributed to factors such as commercialization of scientific knowledge, supply of resources from private sector in purpose of research, over emphasis of performance based evaluation criteria, avoiding from researches that have no commercial value(e.g.: social sciences), technology transfer and share by the way of industry-university partnerships, foundation of consortium, owning the rights of intellectual property and leaving the functionalities of education and research behind or aside(Gupta, 2007). This study describes the financial sources of entrepreneurial university and the importance of fiscal autonomy on utilization of these sources and invention of more resources.

In our globalized world; concepts of innovation based production, innovative thinking, computation and preservation of competitive edge, terms concentrated on production of information and technology, economic growth indexed on scientific research and development of technology help promote the universities that have scientific productivity (Büyükuslu, 2011). In this respect; educational activities that were limited with traditional class and research operations restricted with laboratory now have moved beyond campus borders and started spreading in society by industry sector, business world, civic society organizations and government institutions. Technology based new education models of this study in educational theme explain the interdisciplinary and supra-disciplinary importance of education and interactions or co-
operations with other institutions for the purpose of increasing educational quality.

Universities’ adaptation to national and international educational, social, economic political and technological advances as a higher education institution is obligatory. In order for universities to lead the change and initi- ate the change expected from themselves, they should be able to predict the future from today and make decisions and plans accordingly. This study underlines the new roles and responsibilities of academic and executive administration of university and importance of strong vision under determined mission.

The first transformation was observed in change from educational universities to re- search-based universities, the last transforma- tion was seen in the change from research based university to entrepreneurial university. In the third generation university, development of information based innovation and its passage to daily life(market) has become the main duty of universities (Farsi and Talebi, 2009: 455-456). Pressure on higher education institutions for meeting the changing needs of society was expressed by many scientists, new variables and trends have impact on university while transforming to information based economy(Farsi and Talebi, 2009: 455-456). Therefore, universities must pursue novelties in education and research to gain better position in market (Suciu and Platis, 2009: 594). Constantly changing nature of societal demands pushes universities towards becoming information communities with more innovative and creative environment (Zaharia and Gibert, 2005: 36). It is inevitable for traditional universities to transform to entrepreneurial shape for the sake of meeting the expectations of government, market, civil society organizations and in wider perspec- tive the whole society.

Apart from the traditional academic functions such as formation of human resources and research, as a third function, entrepreneurial university adopts the duties of technology transfer, innovative production, economy and contribution to society. Nowadays, in many places of the world, universities try to ex- pand and diversify their sources of income. Aside from public sources assigned to them, universities evaluate their facilities, vehicles, knowledge sources, and qualified work force with an “entrepreneurial” approach to make more resources. This study states that universi- ties should create more financial sources apart from traditional ones and describes the methods and ways in which they can accom- plish it.
What is Entrepreneurial University?

Entrepreneurial universities mainly aim to contribute to society, transfer technology and produce innovatively as their third function after traditional functions of creating human resources and conducting research. Nowadays, in many places of the world, universities try to expand and diversify their sources of income. Aside from public sources assigned to them, universities evaluate their facilities, vehicles, knowledge sources, and qualified work force with an “entrepreneurial” approach to make more resources. This study states that universities should create more financial sources apart from traditional ones and describes the methods and ways in which they can accomplish it.

Wissema (2009) lists the reasons of passage to entrepreneurial university as follows: private sector’s inclusion on covering increasing costs of ground breaking scientific researches, global competition in education and research, more R&D operations of technology based companies in universities, concentration on interdisciplinary research, high demand for contractual researches, non-public resource search, production of goods and services based on information, technology and innovation. Based on all of these causes, this study will provide a new entrepreneurial approach to higher education institutions, government bureaucracy, and industrial parties. Also, this study hopes to increase the limited native literature on the subject of entrepreneurial university.

Entrepreneurial university takes on three traditional roles (education, research and service) (Mets, 2009: 3). This means that aside from education and research, entrepreneurial university institutionally serves to itself and its hosting society by technology transfer centres that acquires patent and license rights and turns the findings of scientific researches into products and services to make profits. On the other hand, entrepreneurial university creates entrepreneurial competence and courage in the mental world of academic staff, students and graduates and commercializes the information by making products and services out of it. Howard (2005) argues that the information that improves prosperity can be conveyed to industry and manufacturing sectors in these four ways:

1. Diffusion of Information: The first step of using information is assimilation of research findings of universities by industrial sector with cooperation, education or cultivation. This is the step where scientific information of university is recognized by industry.
2. **Production of Information**: Contractual selling of scientifically produced information of university to industry sector by reserving copyrights.

3. **Information Bond**: Transformation of information to products and services. University utilizes its opportunities in the context of intellectual properties, trade secrets and usage of information to cooperate and partner with industry.

4. **Partnership of Information**: Production of information in order to produce financial benefits and make mutual profits.

As noticed, entrepreneurial university plays an active role on information economy by being the third-generation university. Entrepreneurial university conducts the transfer of information and technology by establishing direct or indirect connection with business world, selling patents and licenses, founding small sized firms (spin off) based on new ideas and using transfer offices, incubation centres or university based technoparks (Guenter and Wagner, 2008). Entrepreneurial university forms the culture of entrepreneurship within and around itself, supports local development by establishing new enterprises, commercializes the findings of researches by ways of spin off1 firms, patent and license rights or transfer contracts (Gajon, 2007).

Entrepreneurial university is a new organizational model that allows the competition for the purpose of finding more external resources, increasing efficiency, contributing to economic development and commercializing the results of the studies (Hakala, 2009: 137-141). In such entrepreneurship-focused universities, research and learning events are developed through individuals of different levels (student, faculty member, executive personnel) with initiative development skills, these universities are subjected to be governed so as to contribute to the economic and social improvement (Etzkowitz, 2006).

A research carried out by Sooreh, et al., (2011: 185-189) suggests a systematic approach while describing the concept of modern entrepreneurial university. According to this, entrepreneurial university is a dynamic system involving the inputs such as resource, rules and regulations, structure, mission, entrepre-

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1 Spin off: The name of the firm that is founded separately from the institutional identity of the university and utilizes the information and technology acquired from R&D studies within the university for the goal of making products and providing services.

2 Spin out: The name given to firms that are founded within the institutional identity of the university by using the information, technology and innovation obtained from R&D studies by students and academic staff of the university.
neurship competencies, societal expectations, industry, government and market; a network consisting of education, research, logistics, commercialization, budgeting, finances and executive operations; a process including multidimensional relationships, innovation, research and developmental events; and lastly an organizational model targeting entrepreneurial human resources in accordance with the demands of the market. Likewise, Heinonen and Hytti (2008) defined entrepreneurial university as the entrepreneurial shape, attitude and action inside the university that promotes the entrepreneurial individuals and entrepreneurship culture, encourages change and risk-taking, and involves academic staff and students who are capable of making technology transfer and innovation sustainably.

Entrepreneurial university strongly affects the rise of the local and global industry, and leads to the economic development through effective research, transfer of technology and entrepreneurship abilities (Zhou and Peng, 2008: 641). Entrepreneurial universities are the institutions that take active roles in shaping their surrounding environment, find new demands and customers for their products by various functions, create added value for socio-economic development with its shareholders(students, graduates, academicians, local and regional authorities, regional, national and international business world, civic society organizations, chambers of industry and commerce and etc.), and constitute the production of information based services (Pawlowski, 2001: 431-434).

Basic arguments of entrepreneurial universities include research and development related to industry sector, consultancy, technology transfer, providing life-long learning opportunities, admittance of increasing number of foreign students, carrying out education abroad by offshore campuses, franchise campuses, providing distance learning chance, and providing the opportunity to benefit from physical campus facilities (meeting halls, advertising in sports events and classrooms) (Davies, 2001).

According to Marginson and Considine (2001), getting pressured by resource availability and finances, higher education institutions find ways to enrich their resources by cooperating with non-public firms and companies and commercializing the information and technology they produce.

Entrepreneurial university bears an important function on producing scientific information and sharing it with the public by means of publications. In this sense, entrepreneurial university defines a creative organization which develops joint strategies to reach the best stance in finding finance resources, electing quality
students and faculty members or conducting qualified research in a limitless competition environment, tries to be more productive and bonds strongly between the functionalities of education and research (Kirby, 2005; cited Guerrero and Urbano, 2010). Today, the indicator of a successful university is the ability to turn the research findings and scientific knowledge into high quality, low cost products and services. Efficiency is of paramount importance in international economy, and competition is the most crucial element in world trade. Accordingly, universities should not only restrict themselves with education and research but also target novelties using innovation tools in today’s world economics where entrepreneurship is valued (Sarchami and Sarchami, 2010).

Entrepreneurial university can cooperate intensely with public institutions and industrial firms, create a wide range of income sources, support the entrepreneurial activities of all its parties, develop distinct strategies to found new companies and make changes in its organizational structure to make all of these possible (Cano, et al., 2006).

Entrepreneurial university is a multi-layered structure that allows the passage of scientific information from academy to industry through university based techno parks and establishes indirect relationships with industry sector with its entrepreneurial training (Günther and Wagner, 2007). In modern higher education field, entrepreneurial university appears as a symbol that represents the collaboration of business world and academy, which used to be far apart (Mautner, 2012: 112).

In the process of creating new working fields, entrepreneurial universities support entrepreneurial individuals (faculty members and students) in education, finances and marketing techniques, provide experiences for the investors in finance and marketing on reaching out to new working fields, possess the facilities to foresee the possible opportunities and threats and connect the firms and companies working on similar sectors (Sarchami and Sarchami, 2010).

We can summarize that entrepreneurial university is the total of university’s definitive and basic reactions on production of information and technology and efficiency of transmission of these components from university to industry and society in regional and national innovation system. In information-based economy, university has become the key institution of innovation with its support of creation of human resources by working together with government and industry and foundation of information based firms (Peterka, 2011).
Entrepreneurial university proposes a new, competitive, autonomous, innovative, proactive and risk taking model that initiates enterprises independently by taking all the risks and utilizes all given resources, especially human resources, in different fields and duties creatively to contribute to the socio-economic development of the region (Suciu and Platis, 2009).

Gjerding, et al., (2005) expressed that universities should possess these three convergent and dependent factors in pursuit of entrepreneurial identity:

**Strategy:** University must continuously and clearly define its entrepreneurial vision and detect which measurable results are targeted and who will achieve them

**Structure:** Both formal and informal university structures should be scrutinized to facilitate and promote entrepreneurship

**Culture:** The process of entrepreneurship is dependent on entrepreneurs. The examples of successful enterprises should be regular shown to the entire staff to lead the way for creation of an entrepreneurial spirit.

One of the mostly attributed definitions in the discussion of entrepreneurial university in academic platform is this: Entrepreneurial university acts as a company in trying to find external sources for university and engages in commercial activities like a business and this definition refers to the joint activities with information and technology transfer (Kyrö and Matilla, 2012). According to this definition, university focuses on outer results of the entrepreneurship such as commercializing the research findings, founding companies and capital investment.

Entrepreneurial university is the organization functioning on many areas, constantly looking for new opportunities and taking significant role in the shaping of our future. In addition, this type of university is seen as the institution to follow the multidimensional and changing market that works towards meeting the needs, evaluating new opportunities and keeping the superiority in competition (Pawlowski, 2001: 432).

Lehrer, et al., (2009) keep the entrepreneurial university as the equivalent of “dynamic” university and state that the opposite would be “bureaucratic” or “static” university that does not have a roadmap on the adaptation to the changing environment and institutional development. The adjective of “entrepreneurial” means the same as “commercial”. In this context, the opposite of entrepreneurial university is the traditional university, which is largely occupied with scientific information, how-
ever does not commercialize the information with the help of technology transfer offices, incubation centers and bonds with industrial world. Entrepreneurial university supports regional and national development by technology transfer of academic researches, patent licensing and university based start ups (Levine, 2009).

Developmental Stages of Entrepreneurial Universities

It is a significant fact that in the last thirty years, universities have evolved from traditional styles to entrepreneurial structures with more entrepreneurial activities. Levine and Autio (2008: 246-249) has classified the factors stimulating this change in two categories. The first one is the fact that research findings of universities that brought up technology transfer philosophy were used commercially and that was made possible by “Patent and Trademark Law Amendments Act” or known as Bayh Dole Act in 1980. In accordance with this act on the congress, changes were made in copyright laws to commercialize the researches financed by public in partnership with industry (Yusof and Join, 2008: 85). The other cause is that, besides education and research universities had to serve to a third purpose (supporting economic and social development) and therefore the university’s role on national innovation altered (Zaharia and Gilbert, 2005: 36) which brought new responsibilities to universities.

Etzkowitz (2006) claims that entrepreneurial university is the second academic revolution. The first revolution is the duty of conducting research apart from traditional education in universities and the second one is contributing to social and economic life by commercializing the scientific information obtained from education and research and thus transforming it into products and services that create added value (Farsi, et al., 2012: 197-200).

Despite social, political and economic changes in the world, from the Medieval Ages to the 20th century, university had not shown a significance change and remained relatively constant, preserving its status (Harloe and Perry, 2005: 35). From Medieval times to nowadays, education was accepted as the main function of the university; research began to involve in university’s responsibilities in the end of the 19th century and at the beginning of the 20th century. After almost a hundred years, apart from education and research missions of the university, the third mission defined as contribution to society and economy was included. In many developed countries that experienced industrial revolution, with the new higher education paradigm flourishing in the 1980s,
change in economic, social and educational policies has reflected on all parts of community (Rinne and Koivula, 2005: 188). The source of information and new ideas and the place of the distinguished elites has become a contributor of economic development with the last transformation (Heinonen and Hytti, 2008: 330).

The term entrepreneurial university was first stated by Etzkowitz (1983) who is an eminent figure in the field of change and transformation of modern university. Afterwards, Webster and Etzkowitz (1991) defined entrepreneurial university as the second academic revolution putting economic effectiveness of profit and sources in the heart of university and indispensable university of the future cited (Nelles and Vorley 2009: 345). Entrepreneurial university was particularly associated with Burton R. Clark. His book that was published in 1988 titled “Towards Entrepreneurial University: Roadmap of the Organizational Change” expressed the university model of the 21st century and has been the most attributed source in the whole world especially England, North America and Australia (Mautner, 2012: 99). The book examines the events taking place in 8 different universities. These universities are as follows: Warwick (United Kingdom), Strathclyde (Scotland), Twente (Holland), Joensuu (Finland), Chalmers (Sweden), Mak-
federal governments’ resources as of the 19th century.

2- The fact that European universities looked out for non-public resources to close the innovation gap with American universities (Lisbon Agreement was signed for this purpose in 2000 to make the continent of Europe the centre of entrepreneurship and innovation). Also the objectives of Bologna Process such as providing and spreading the mobility of students and faculty members and forming a synergy between Europe Higher Education Field and Europe Research Field serves to the same purpose.

From the standpoint of change in universities of Europe, traditional education based on guild system in which public servants receive education left its place Humbold type of organization that brings together the education and research and targets not only the elite and distinguished people but masses and finally resulting in entrepreneurial universities that commercialize the research (Rinne and Kovíula, 2005: 125-127).

Marketing and the consequent value creation culture has become a key term that is frequently discussed in the higher education platform. In other words, definitions belonging to business area such as “educational entrepreneurship”, “entrepreneurial university”, “customer”, “market”, “market value”, mission and vision descriptions”, “profit rate”, “added value”, “sustainable progression and development”, and “innovation” have become common in university culture and business based “entrepreneurial culture” has taken hold of universities (Xiong, 2012: 322). As inferred from the definitions, especially after the last quarter of the 20th century, it can be observed how duties and objectives of higher education institutions have confronted evolitional changes.

Elements of Entrepreneurial University

Clark (1998) states 5 main elements of entrepreneurial universities: Strong guidance basis, wide scientific environment, various sources of profit, supported academic environment and internalized entrepreneurial culture.

Guerrero and Urbano (2010: 55-59) define the elements of entrepreneurial university as follows: Pace and skills of adaptation to the environment, change in executive and institutional structure to provide the quick adaptation to changes in environment, new strategies for regulating internal and external affairs of the institution, the skills of creating new entrepreneurial events and associating them with the academic quality of the institution, environmental pressures stemming from the gov-
government and other surrounding parties, and applicable entrepreneurial advice.

Departure point of the three last stated elements stated above is the first element. The first step for university administrators and academicians to take towards entrepreneurial university model is to establish strong and stable willpower within the university. When the first stage is completed, all the voluntary parties of entrepreneurial organization will internalize the new institutional structure and tools to be used faster and easier.

Bratianu and Stanciu (2010: 120-122) list the elements of entrepreneurial university as the institutional culture that encourages risk-taking, flexible organizational structure, developing new strategies towards application, and forming strategical partnerships with outer parties.

**Five Main Principles of Clark**

It was suggested that the discussion of entrepreneurial university began by a study of Burton Clark on five universities in 1993; Clark reveals five main elements of entrepreneurial university in this study. These are:

**A strong central administrative staff to bring academicians and executives together**

**Wide developmental environment** to reach out beyond traditional university environment

**Various sources of income** with wide range, not only based on public resources

**Academic units encouraged** on conducting entrepreneurial operations

**Entrepreneurial culture** internalizing dedication to change

Clark (1998) describes how these elements are supposed to transform the university to an entrepreneurial organization in detail. He claims that these elements might seem independent; however, the full interaction of these five elements will turn the university into an entrepreneurial organization. He explains that these five elements were formed by the shared common values of all the universities of his research but also include local differences.

Furthermore, in the entrepreneurial university model, it is told that these elements complement each other and establishment of a single or several elements without reaching the full-set does not constitute significant meaning (Alayoglu and Karabulut, 2011; Oleksiyenko, 2002; Tuunainen, 2005).

**The Role of Entrepreneurial University**

Rinne and Koivula (2009) argue that universities should adapt to the changes much faster
than before so as to preserve their leading role on contributing to social improvement in information societies. University is believed to have a responsibility and a central role on information production systems by actively engaging in entrepreneurial operations.

Moving by the fact that universities experience an era of change (Etzkowitz and Viale, 2010: 597), now universities are not only expected to perform education and research but also pay more attention society and economy, produce information in accordance with the expectations of society and economy and contribute to societal and economic development by turning this information to added value (Nelles and Vorley, 2009: 346). In ever changing and highly competitive global information economy, the value of education in higher education had never been more significant since higher education institutions are the primary sources of skilled labor and economic development, therefore societal improvement. This is true for both individual and societal development (Crow, 2008). Utilizing the information commercially apart from education and research missions of newly formulated university allows universities to better contribute the benefits stated above (Rabbinge and Slingeland, 2009).

In general, entrepreneurial university bears primary duties and responsibilities on making economic entrepreneurialships by producing, utilizing and operating information, installing high quality and advanced manufactured systems, improving the quality of workforce, employment, increasing income by the way of individual employment (spin off spin out), finding solutions to problems by forming strong bonds between university, industry and society, increasing the production thus contributing to economic development and social prosperity (Sarchami and Sarchami, 2010).

**CONCLUSION**

In this study, the concept that is highly discussed in higher education platform of our country for the last several years, entrepreneurial university, was articulated with its all aspects. In the first section, the reasons for the transformation towards entrepreneurial university were explained and inner and outer factors impacting universities were stated. More complicated structures of universities, increasing number of students as a result of massification and shareholders covering a quite large part of the community make it harder to govern universities in traditional fellow worker way. Therefore, it is suggested that entrepreneurial university should be governed by professional administrators. Entrepreneur
university was founded upon the market demands of educational and research notions and entrepreneurial university is largely market-oriented. In this regard, it is important for university administrators to keep track of the market closely and respond to the demands, expectations and requests of the market effectively and timely. This can only be achieved by administrators who have a deep understanding of the market and can harmonize the expectations of market with sensitivities of academic community.

Most entrepreneurial universities are based on boutique university structure that clusters in a particular field and only operates in that field. For example, reviewing EU countries, it is observed that many universities consist of only a couple of faculties. In this sense, it is possible to notice universities with tens of faculties and hundreds of departments in public universities of Turkey. Entrepreneur universities seem to have only several faculties and limited number of departments within these faculties. Here, the purpose is to define a thematic field and conduct quality educational functions and authentic research and development activities in that field. Examining the academic units of recently founded private universities, it is obvious that they are made up of restricted number of faculties and departments. This is the right academical organization and the trend in the world is shifting towards this foundation. Hence, it is advised that the focus of existing universities should be on certain thematic fields and universities that will be founded in the future should consist of a few faculties and departments.

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